

AMENDMENT TO THE SPECIFICATION

Please amend the specification by adding the following on page 1 of the application, as the first paragraph of the amended specification, after the title.

Related Application

This application is a Divisional of Patent Application 09/986,409, filed on November 8, 2001.

Please amend the paragraph beginning on page 3, line 10 as follows:

--FIG. 1 shows the typical process 100 followed in manufacturing flip-chip assemblies (devices). At step 105, a bumped-die (e.g. solder-bumped) is dipped into a thin film of flux. At step 110, the bumped-die is attached facedown on to a PCB (substrate). The solder provides mechanical, thermal, and electrical connections to the PCB. Preceding this step, there may be an alignment step where the bumps are aligned over the bond pads of the substrate. At step 115, solder reflow is applied to the device (assembly) to help stabilize the bump attachment (solder joints). At step 120, underfill material is applied between the flip chip and substrate along one or two edges of the die to minimize stress-induced failure of the solder interconnects.. The underfill material is allowed to flow, by capillary action, between the device and the PCB through a small gap (e.g., typically less than 0.003 inches). At step 125, after the adhesive has completely underfilled the die, a fillet of the material is applied along the remaining edges of the chip to help reduce peripheral stress concentrations. Prior to the underfill application, the substrate may be preheated to very high temperatures (e.g., 80 to 100 degrees Celsius) to improve the flow characteristics of the underfill and reduce the risk of air voids by ensuring a moisture-free substrate. Thereafter, at step 130, the underfill may be cured in an oven at elevated temperature (e.g., 150 – 170 degrees Celsius) over an

extended period of time (e.g., 1 – 1.5 hours) to form void-free bonds that increase the thermal efficiency of the device and help reduce stress on the chip.--